

The objectives, indicators and targets

Key objectives and actions

The Te Awarua-o-Porirua Harbour and Catchment Strategy sets in place three key objectives:

1. Reduce sedimentation rates
2. Reduce pollutant inputs
3. Restore ecological health

These are shown in Table 1, together with the general actions in response. The Strategy and Action Plan has a particular and deliberate focus on reducing sediment and pollutants at their sources, where ever possible.

Indicators and targets

Table 2 breaks the objectives down into a list of indicators, current condition and target levels, and a date by which the target could realistically be achieved.

For each objective, the best indicators of health or healthy outcome have been chosen. Sampling will occur at multiple sites.

Each indicator has established baseline data against which future improvement can be measured. Where it is difficult to determine specific targets for some indicators at this stage, specific future research or monitoring form part of the Strategy to establish these. Better definition of targets will be incorporated as information becomes available, and included in revised versions of the Strategy.

The actions required to achieve these objectives and their targets are outlined in the Action Plan on pages 14-19.

TABLE 1: KEY OBJECTIVES AND ACTIONS

1. Reduce sedimentation rates
 - Improve land management and land use practices
 - Catchment protection and re-vegetation
 - Localised management of marine sand banks and improved harbour flushings, where appropriate
2. Reduce pollutant inputs
 - Reduce faecal inputs
 - Cap nitrogen inputs
 - Reduce toxicant inputs
 - Additional litter management

The focus is on identifying and stopping pollutants at their source.
3. Restore ecological health
 - Estuary re-vegetation (seagrass and saltmarsh)
 - Streambank (riparian) re-vegetation and habitat enhancement – note that riparian planting will also help filter and reduce sediment and nutrient inputs

Youth sailing camp in the Onepoto Arm



TABLE 2: INDICATORS AND TARGETS

INDICATOR	CURRENT CONDITION	TARGET	DATE	COMMENT
1. Reduce sedimentation rates				
Annual sedimentation rate	Provisional annual sedimentation rate is less than 2mm/year.	Interim: 50% reduction in established baselines for current sediment inputs from all tributary streams. Long term: 1mm/year average rate for both arms.	2021	Previous estimates of average areal sedimentation rates were 6 and 9 mm/year for the Onepoto and Pauatahanui arms, respectively, based on bathymetric surveys in 1975 and 2009. Baseline sedimentation rates are still to be established. The provisional rate is based on annual sediment plate measurements since 2010 and the 2014 bathymetric survey. Interannual sedimentation rates are highly variable. Monitoring is ongoing.
2. Reduce pollutant inputs				
Faecal indicator bacteria counts	Bathing water quality in the harbour is frequently breached. Some sites only have SFRG grades of 'poor' or 'fair'. Preliminary faecal plume modelling indicates gathering of kaimoana is not safe in the harbour.	Recognised high-use recreational spots in the harbour have a 'Suitability for Recreation Beach Grade' of at least 'Good'. Improved kaimoana safety from selected gathering locations, consistent with public health advice.	2021	Suitability for Recreation Grades (SFRG) are: • Pauatahanui Inlet at Water Ski Club = fair; • Pauatahanui Inlet at Paramata Bridge = good; • Porirua Harbour at Rowing Club = poor. It is important to recognise that there will always be high health risks for kaimoana gathered from any areas subject to urban run-off.
Dissolved nitrogen levels in tributary streams and percent cover of nuisance algae in intertidal areas of the harbour	Median concentrations of dissolved nitrogen in tributaries are elevated. Intertidal algal cover is 'low' to 'moderate'.	Maintain or reduce dissolved nitrogen concentrations in tributary streams. No net increase in intertidal algal cover.	2021	Of the two key nutrients – nitrogen and phosphorus – the targeted reduction of nitrogen is of highest importance. The main sources are the sewerage and stormwater networks as well as rural subcatchments. 'Low' and 'moderate' are condition ratings developed for Porirua Harbour and are based on annual monitoring of macroalgal cover.
Toxicants in harbour sediments – especially zinc, copper, lead and polycyclic aromatic hydrocarbons (PAHs)	Zinc concentrations exceed ANZECC-Low trigger values in the subtidal sediments of Onepoto Arm and Total DDT concentrations exceed ANZECC-Low trigger values throughout the harbour. Concentrations of other metals and PAHs are below guidelines.	Reduce concentrations of toxicants entering the harbour from Porirua Stream and the Semple Street stormwater outfall. Maintain or reduce concentrations of zinc and other toxicants to below the ANZECC 'Low' guideline levels.	2016	Zinc is the most prevalent heavy metal accumulating in Onepoto Arm. Other toxicants present include copper, lead, and PAHs. Porirua Stream and the Semple Street stormwater outfall are the major sources of toxicants. Zinc and copper concentrations in lower Porirua Stream regularly exceed toxicity guidelines.
Harbour litter amounts	Excessive litter accumulation in southern Onepoto.	Significant reduction in litter accumulations in and around harbour.	2016	The southern end of the Onepoto Arm has the worst litter problem in the harbour.
3. Restore ecological health				
Estuarine plant cover	Saltmarsh cover is 0.3 and 9.5% in the Onepoto and Pauatahanui arms, respectively. Intertidal seagrass cover is 6 and 5% of the Onepoto and Pauatahanui arms, respectively.	Establish saltmarsh cover in suitable areas of harbour, especially the Onepoto Arm. Increase the distribution of seagrass beds throughout harbour from 2008 baselines.	2021	Based on habitat mapping undertaken in 2008 and again in 2013, the area of saltmarsh vegetation did not change greatly. However, the area of intertidal seagrass declined by 9% harbour-wide; seagrass decline was greatest in the Onepoto Arm (12%) compared with the Pauatahanui Arm (7%).
Riparian (stream bank) plant cover	Limited riparian cover in many streams.	Implement sustainable land use plans that include riparian protection for Whireia, Battle Hill and Belmont Regional Parks.	2016	Research and the Sediment Reduction Plan will assist targeted riparian rehabilitation.
Stream and harbour invertebrate communities	Stream and harbour invertebrate communities are rated 'fair' to 'good'.	Establish riparian plant cover along majority of stream length, particularly in Horokiri, Pauatahanui and Porirua streams. The health of stream and harbour invertebrate communities is maintained or improved.	2031	Riparian vegetation improves in-stream conditions for fish and stream insects and other aquatic life. It also provides streamside habitat, reduces stream bank erosion, and filters sediments and pollutants. Regular monitoring of stream and harbour invertebrate communities will continue. 'Fair' and 'good' are condition ratings developed for the streams and harbour, and are based on periodic monitoring of invertebrate communities.